THE

MAY
1956

Gleaner

NATIONAL AGRICULTURAL COLLEGE

POULTRY AND AGRONOMY ISSUE

Gleaner

NATIONAL AGRICULTURAL COLLEGE

Farm School, Bucks County, Pennsylvania

VOL. L — MAY, 1956 — NO. 4

In this Issue

REGULAR FEATURES — Page

Editorial Comments 4
Honor Aggies 5
Sportslites by Stammel 17
Notes and News on Campus 20
Notes and News in Agriculture 21
Hijacked Humor 24

SPECIAL FEATURES

Goin' Fishin' 8
How Did Our Garden Grow 13
Bugs 14

POULTRY AND AGRONOMY FEATURES

The Great Underground Reservoir 6
Gallus Gallus — the Red Jungle Fowl 9
Trees and Clover — Cousins? 10
Winged Wonders 11
Green Feed 16
CaO, etc 22

ON THE COVER — *Junior Student Walter Bradford casts a serious eye (along with his line) downstream. See page 8 for details.*

Staff

The Gleaner is published throughout the school year by the student body of the National Agricultural College. Entered as second class matter at the Post Office at Farm School, Pa. Subscription rate—$1.50 per year.

ACCORDING TO THE CHAMBER—

PERHAPS ONE WAY to express an opinion is to argue against opposing minds. Below are quoted, in order, sections of an entire news release distributed by the Chamber of Commerce of the United States, Washington, D. C. The cartoon is the Chamber's also.

Federal Aid to Education

"Washington — One of the reasons why Federal aid for school construction seems so attractive is that it looks like something for nothing, according to the Chamber of Commerce of the United States.

But, of course, says the Chamber, this is a fallacy. Actually you pay twice, and more, for Federal aid.

First, every Federal tax dollar comes from your pocket, the Chamber points out. Under the present school construction bill, (H.R. 7535), you also would pay an equal amount in added state taxes because the bill says that every Federal tax dollar must be matched by a state tax dollar."

In these two-and-a-half paragraphs the Chamber denounces our Federal-school-construction bill, mentions their own name three times, and obluscates the truth. By using the word "twice," for its cousin "double," it is made to appear that we are being over-taxed. We pay twice, to be sure, but only half as much each time.

Repeated mention of their name labels this release as having a dual purpose—propaganda, obviously, and secondarily publicity. The date-line "Washington" makes the whole thing

(Continued on page 19)

The End Result

. . . . *Editorial Comments* . . . .

WHY?

THE N.A.C. LIBRARY contains about twenty-five thousand volumes. These volumes deal mainly with agricultural subjects. But they also include many texts dealing with religion, philosophy, history, and fiction; among the February accessions, for example, are Carl Sandburg's six volumes on Abraham Lincoln.

The library houses the best periodicals reporting the latest technical developments in agriculture. For the foreign affairs student, there are "Time," "Newsweek," and "U. S. News and World Report"; for senior seminar students, the latest reports from government departments and private concerns. For your term paper, you can check the "Readers' Guide" and then go to the basement to find the essential reference material.

Whether you're writing a term paper, preparing a seminar report, or just seeking an evening of reading and relaxation, the library doors are open to you. Did you ever stop to think of the freedom you have in the library? Did you know that it is open thirteen hours a day?

With a library as over-crowded as ours, would you expect to find an empty shelf? — Well, there is one. On it is a note that reads: "This shelf of books will not be replaced until the book, 'The Anatomy of the Domestic Animal,' is returned." This volume disappeared within 24 hours from the time it was placed on the shelf. The now empty shelf was dedicated to the memory of John H. Toor, 1952, by his classmates. The missing book, and nine others selected by the head of each department, are not presently available for our use.

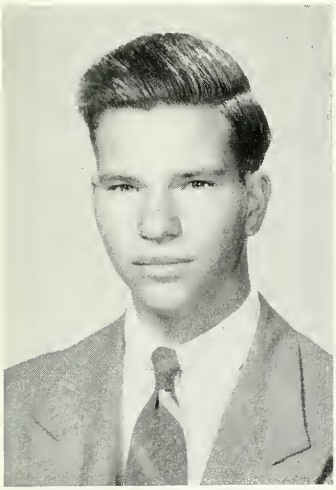
The removal of this book from a memorial shelf is only the latest instance of incredible misconduct in the college library. If you've used the library to any extent you know of earlier vandalism. How many times have you been referred to a magazine, only to discover the pages of the particular article have been torn out? Have you ever looked for a book, and discovered that it is not on the shelf, even though not "signed out"?

Do we deserve the freedom we now enjoy in the library?

MEET THE MEN WE CALL –

HONOR AGGIES

WHEN YOU ENTER room 6 in the new dormintory Beethoven's V greets you, a fragrant pipe odor plays around your nostrils; greedily, your eyes drink up naturalistic and modernistic pictures Tom has composed. A red case with a dry arrangement pleases your eye, then the flowers on the window sill, and finally the wealth of books on the shelf, filled with studies of nature meet your glance. You realize that this man's greatest interest is the study and love of nature. Tom lifts his eyes from the work he had been doing for countless hours, his eyes—half weary, half smiling—focused on me. "You're Honor Aggie" I announced. "Give me the low-down on yourself."



Thomas Hofmann

Tom stretched his long lean legs, puffed easily on his pipe, and smiled modestly at the thought that the Gleaner had chosen him. "I live in West Orange, New Jersey where I attended West Orange Senior High. Even then, as now, my 'magnificent obsession' is nature; one of my favorite pastimes was nature walks. I also bird watch. It's really very simple; all you need is plenty of patience, field glasses and a certain knowledge of the habits of the bird. For example: Warblers can be found around low dense growth or a region of heavy oak population which acts as a host to many insects. I'm also interested in gathering and identifying plant materials by use of a special key. *Also* I do flower arrangements. Besides nature, I also like to draw. I do impressionistic and contemporary compositions; I use pastel, charcoal, and water color; I enjoy listening to classical music, and I like Nat King Cole too."

As he spoke about his extra-curricular activities, there was an "I'm going to miss the ole place" look in his eyes.

"I was in the Hort. Club every year," he began. Tom starred at A-Day where he won the Grand Champion award for a naturalistic setting in his Freshman year, and Reserve Grand Champion award for the same type setting in his Junior year.

"I help at dances," he said. This is the greatest of understatements, for before dances he is a human dynamo, harnessing his terrific energy, unlimited patience, (and his artistry) for his class until the last minute before the dance begins.

How about the future?

"Well, I'd like dealing with botany, maybe teach." His face lit up with eagerness as he explained to me his desire to awaken his future students to nature's millions of wonders.

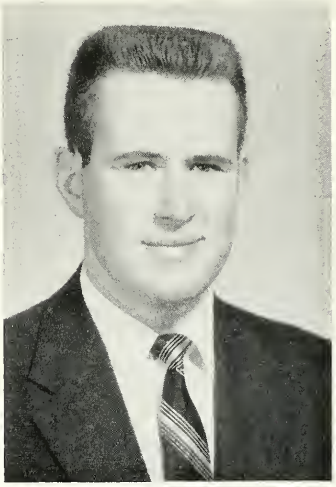
When I asked what advice he had for the lower classmen, he said: "Learn to use the library. Get information from it rapidly and efficiently."

He urged the lower classmen to take advantage of the practium programs, especially for the inexperienced man—"Learn from your field trips too."

He worked at W. A. Manda & Son, a grower of tropical and foliage plants, in his Sophomore year, and Horn's Nursery in his Junior year.

As I left the room after the interview, I knew some day I'd be entering an office with an inscription on the door, "T. Hofmann, Professor of Botany."

AS I SAT in the easy chair, June Allyson gave me the once over from the picture attached to the drapes, and December Bride was getting all confused in the closet (that's where the T.V. set is kept). Kirk stopped spraying his throat, gargling, and practicing his la, la, las to be in tune for his forthcoming quartet presentation. For, although not Irish by descent, he's the closest thing to a "real genuine Irish tenor" this school has ever seen. He hails from New Philadelphia, Ohio. A dairyman from way back, his distinguishing characteristics are his crew haircut and his perpetual smile.



Kirk Arnold

His first love is the "little ladies"; cute, curvacious ladies. "The more the merrier," he claims. "Variety is the spice of life when it comes to *les femmes*." Choral singing is one of his greatest enjoyments, and N.A.C. won't forget "Coney Island Babe" which he helped put over in the quartet "the Four NAC's."

Kirk's extra-curricular activities are numerous. In his Junior and Senior

(continued on page 17)

THE GREAT UNDERGROUND RESERVOIR

by r. d. forbes

WHY SHOULD WE TROUBLE to conserve water in the relatively humid Northeast, which has 30 to 50 inches of rainfall annually, and where the rain and equivalent snow are quite evenly distributed throughout the year?

One reason, of course, is the heavy demand for water by a huge population and ever-expanding industries. A 1953 estimate[1] puts the average daily use of water for domestic purposes at 50 gallons for every man, woman, and child of this population. As for industrial use of water, to wash a ton of coal requires 200 gallons of water; to weave, dye, and finish a yard of rayon cloth, 15 gallons; to prepare a pound of butter, 2½ gallons; to convert to meat a ton of live animals, over 4000 gallons; perhaps most astonishing of all, to roll a ton of steel requires 28,000 gallons outright, or up to 110,000 gallons if the water can not be re-used in manufacturing additional tonnages. We need hardly add to these uses the comparatively insignificant quantities so far used in actual irrigation of farm crops in the Northeast to arrive at some understanding of the demands we make on our apparently bountiful water supplies.

The effect of excessive human use on the permanent water table — the level of the water stored in the soil and fissured rocks by the precipitation of perhaps several years — is apparent in such localities as the New Jersey coast and the great industrial region on both sides of the Ohio-Pennsylvania line. The deep wells of Atlantic City have been periodically threatened by intrusions of ocean water, and many farmers' wells in the upper Ohio valley have of late years gone dry in even short droughts.

A second reason for "conserving" water in the Northeast is the fact that, in spite of substantial regularity in the occurrence of our precipitation, there are enough irregularities (excesses as well as deficiencies) to create serious problems for mankind. Last summer's crop losses from drought, in South Jersey, for example, are vivid in the minds of many readers of THE GLEANER, but they cannot be compared with the loss of crops, and the hardships to men and animals, produced by the regional drought of the summer of 1930.

Floods in the streams of the Northeast are the result of occasional excesses of precipitation. The tragedies within 25 miles of the college campus caused by the floods of last summer lend interest to the statistics of high and low-water flows in the Delaware River and Neshaminy Creek. The daily flow of water in the Delaware at Trenton during the past 38 years of accurate records has averaged 11,840 cfs.[2] The high-water flow of 227,000 cfs. on March 19, 1936, was 186 times the low-water flow of 1220 cfs. on September 18, 1932. Before the day of accurate measurements, 295,000 cfs. were estimated to have flowed past Trenton on October 11, 1903. (The 1955 flood did not top these maxima

[1] America Water Works Association, New York, November, 1953.

[2] From records of the U. S. Geological Survey. "Cfs" is cubic feet per second.

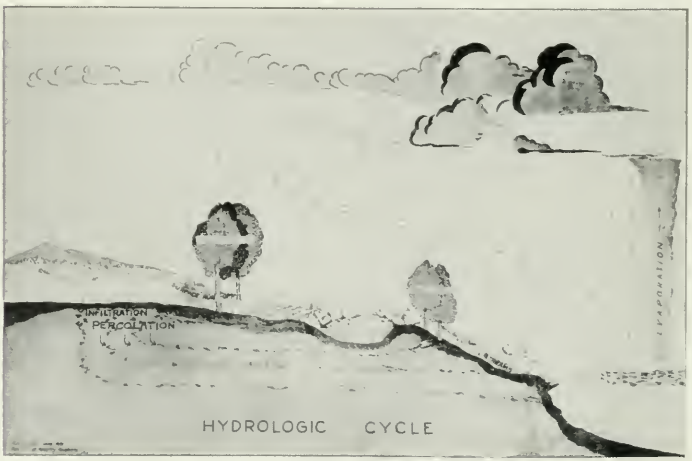


Figure 1. The Hydrologic Cycle.

at Trenton, but higher up the river set all-time highs). The ratio between high and low flows recorded in Neshaminy Creek is even more spectacular than in the Delaware: it is 6050 to 1, the extremes occurring within 16 months.

What Becomes of Precipitation?

To understand the possibility of equalizing the flow of our streams throughout the year — which is the never-to-be-attained ideal of the water conservationist — we must realize what becomes of the water or snow that falls on our planet. Comprehension must start with knowledge of the "hydrologic cycle." This cycle is diagrammatically shown in Figure 1. To avoid complications, none of the precipitation is shown on the figure as snow.

Not all the rain that falls from the clouds reaches the surface of the mineral earth. Where it falls on a forest a certain amount is intercepted by the leafy, or even bare, branches of the trees, and is evaporated before it can trickle down the branches and trunk to the ground. As anyone knows who has ever taken refuge under a tree in a shower, this interception may be appreciable if the rainfall is light and brief, but negligible in a real downpour. In a hemlock forest the percentage of the rain intercepted by the dense evergreen foliage has been estimated[3] at anywhere from 13% to 48%. Brushy species of vegetation, or even lesser vegetation and surface debris, may also intercept substantial amounts of rainfall.

The rainfall that reaches the ground must either infiltrate into the soil, or run off over its surface. The capacity of a soil for infiltration is the result of a great complex of such factors as texture, structure, colloidal condition, animal life, and frost. But the most universal factor affecting infiltration of water into any soil is the turbidity of the water. W. C. Lowdermilk, now a world authority on watershed management, some 25 years ago allowed clear water to infiltrate typical profiles of a California soil, and established its downward rate of movement. He then muddied the water with some of the fine surface material typical of this soil. Within six hours the rate of infiltration dropped to 10% of what it had been; the fine soil particles, carried downward in suspension, had clogged the pores of the upper soil horizons, and ruined the absorptive capacity of the soil. Rain beating upon the bare soil of land *deprived of a vegetative cover* is inevitably muddied, and, acting like the muddied water in this classic experiment[4], promptly renders the soil impermeable. Herein lies the key to the problem of water conservation.

Once infiltrated into the soil, precipitation may be returned to the atmosphere by the physical process of evaporation and the biological process of transpiration. The evaporation of water from a free water surface exceeds the average annual precipitation, even in our relatively humid Northeast; evaporation from land surfaces is of course much less, but substantial. Transpiration from either agricultural crops, or trees and brush, causes extremely heavy losses of soil moisture, amounting in the case of forests to from 5 to 25 inches of water annually.

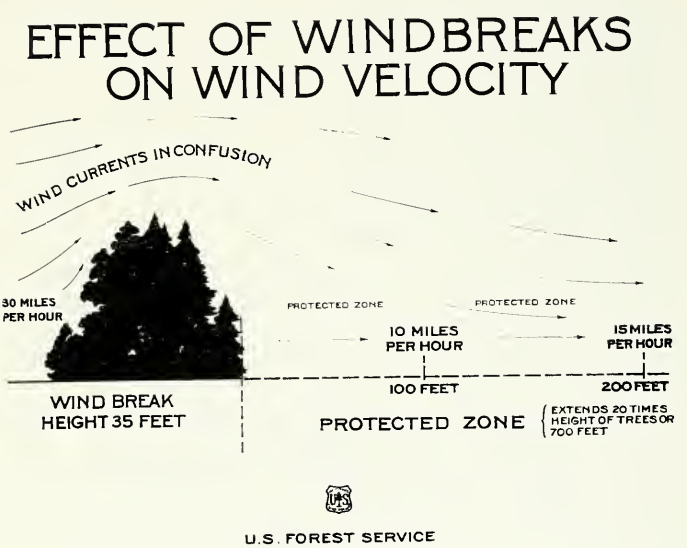
The infiltrated water which is not returned to the air by evaporation or transpiration percolates to greater depths, and is eventually discharged, often many miles away, into springs, streams, or the ocean itself. In the Northeast the percentage of annual precipitation so discharged probably averages 50.

Practical Measures of Water Conservation

The first thought of most of us when confronted with the statistics on flood flows of our Northeastern streams is: "Let's build some big dams capable of storing these waters against the inevitable day of drought!" But quite aside from their costliness, such dams often flood important areas of our very best agricultural land, and the evaporation of water from the reservoirs they create is, we have seen, excessive. To me it appears very evident that the total volume of water we may store above ground behind dams is incomparably less than the volume we may store below ground, *provided* we keep the soil of all land, whether farm or forest, in the best possible condition for infiltration of our precious precipitation.

On farms, the standard practices of our Soil Conservation Districts promote this condition. (Ought not N.A.C. to be in the forefront of those demanding such a district in Bucks County?) The maintenance of a cover crop at all seasons of the year; contour plowing and terracing; conversion to permanent pastures, or restoration to forest, of slopes subject to even moderate erosion; these are practical measures of water conservation on the

(continued on page 17)

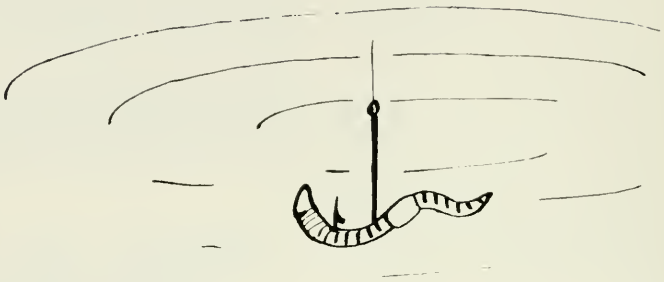


[3] Society of American Foresters, *Forestry Handbook*, Ronald Press Company, New York, 1955. Subsequent data are largely from this source.

[4] Performed at the California Forest Experiment Station, U. S. Forest Service.

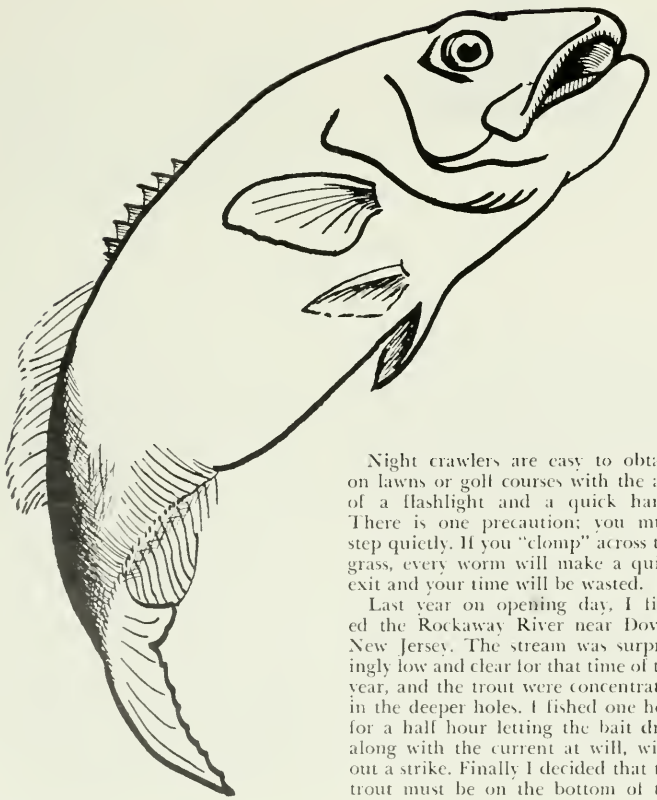
Goin' Fishin' ?

by walt bradford '57



IN THIS PART of the country the opening day of the trout season is during the first week in April. From this date until the middle of May is the best and easiest time to catch trout. The reason is this— trout are not as easily frightened in high, discolored water. At this time of the year, the heavy rains bring many kinds of grubs, worms, and other spring insects to the hungry trout lurking at the bottom of the stream.

Worms are the best bait for trout since this is the food Mother Nature provides for them early in the season. Often sluggish fish that refuse to budge for a lure of a fly may be coaxed into taking a drifting or struggling worm that appears directly in front of their noses.



Night crawlers are easy to obtain on lawns or golf courses with the aid of a flashlight and a quick hand. There is one precaution; you must step quietly. If you "clomp" across the grass, every worm will make a quick exit and your time will be wasted.

Last year on opening day, I fished the Rockaway River near Dover, New Jersey. The stream was surprisingly low and clear for that time of the year, and the trout were concentrated in the deeper holes. I fished one hole for a half hour letting the bait drift along with the current at will, without a strike. Finally I decided that the trout must be on the bottom of the pool, and that more weight must be added. After adding just enough weight to keep the sinker stationary, I let the bait remain in one place long enough to entice the trout to strike. Every minute or so I would raise, then lower the rod tip to let the sinker roll a few feet. On the second try, I had terrific strike and in a few minutes netted a sixteen inch "Brown". By changing methods of fishing, I caught five twelve to sixteen inch Brown trout in the next hour.

This system (with worms) proved itself from opening day until the end of May.

Minnows also make "killing" trout baits, particularly for large fish. They're somewhat troublesome bait to use, because they have to be kept alive or else fished so they have live action. It's a real chore to keep minnows alive while wading and fishing a stream. But fresh, firm, dead ones given good action produce about the same results. You can buy preserved minnows in any tackle shop, but I would use them in an emergency when you can't get fresh ones. Trout often seem wary of the taste or odor of the preserving formula, and if you don't hook the trout on the first strike a new minnow must be used.

I prefer a simple rig, and use a double minnow hook with a long needle shank, eyed at the pointed end. I thread it through the minnow from the vent to the mouth, then attach the leader to the eye, which sticks out a little beyond the minnow's lip. The bait lies in a natural position between the two hooks, which are down near the tail. For April fishing, I add a sinker to keep the bait close to the

(continued on page 18)

GALLUS - GALLUS —

THE RED JUNGLE FOWL

by lew seidenberg '57

IF WE LOOK AROUND US in various parts of this country and abroad from one farmyard to another, we may see hundreds of varieties of chickens, ducks and geese — all being classed under one of those three headings, but among themselves, so different. In ducks, for instance, we see the heavy, white, flightless Pekin, and we also note the high egg producing, colored, light Indian Runner. Both ducks, but so different. It is believed that the majority of the ducks on the world's surface have all originated from the common Mallard. Chickens, too, it is believed, have all originated from one form of fowl; Gallus gallus— or the common name being the Red Jungle Fowl. Some scientists believe that because of the wide range of types of modern day chickens from very heavy to very light, that maybe there were two genus Gallus that were the stock of modern chickens, but the more accepted theory is that Gallus gallus alone was the ancestor. This is further backed up by experimental breeding whereby the Red Jungle Fowl, still found pure in the wild state has been mated with domestic poultry. All crosses produced fertile offspring, whereas when other Gallus were crossed, sterile offspring resulted.

The Gallus gallus, from the wild state, is a small bird, resembling in structure and coloring the game birds or more like the Brown Leghorn chicken. The males are more ornate in color and in feathers with a bigger comb and wattles than the females. These birds follow the pattern of most other wild birds, having a definite mating season and not producing eggs year round as do our modern day breeds. Therefore, eggs-per-year are few.

One might wonder how so many different modern breeds and varieties could have been developed from this one bird. Today we have birds as large as the Jersey Giants, we have them small as the Bantams. There are some which are black, others white, others speckled, some with clean shanks and feet, others with feathered shanks and feet. Some lay brown eggs, some buff (the Gallus gallus), others pure white. All these changes have come about by the two distinct methods. One is by nature's way of mutation and selection. This is an old Darwinian theory that is here again proven true. Occasionally from a group of similar looking animals, there will be one that is unusual. This may be a mutation and when mated with another like itself, will tend to form a new "Race." These mutations, or sometimes called sports, are recessives genetically, and so can be lost for awhile into the more common forms only to appear seemingly "out of nowhere." The second method of development of these many varieties is by the influence of man. He may take one of these sports and form a breed of it, or he may take an individual from a group which is not a mutation, but is slightly different than the rest and try to increase that one particular character. So it has been done with egg production; the amount of eggs laid per bird has been increased through breeding. Also, the length of time of egg laying has been extended to a yearly basis, rather than seasonal. These changes take time — sometimes years, and many generations — sometimes just a few generations, and a new strain is developed. So it has been that from one original wild bird, Gallus gallus, has been developed hundreds of chickens, each useful for a new purpose in their own particular form.

One of the most interesting and unusual breeds of chicks is one which recently has been publicized in the chicken world. It is not known because of its great egg production or grain conversion, but rather because of the age of the strain of the breed and mainly the color of the eggs. These birds have been named "Easter Egg Chicks" but officially they are known as Araucana. Some 20 years ago, a few birds were imported into this country and from this small beginning has come the most unusual of fancier's birds. The Araucana is an old strain believed to have been kept and maybe developed by the Araucana Indians of Chile. These eggs they laid had all the qualities of regular chicken's eggs, except that they were blue. As civilization crept into the Indian area, this breed became degenerate in its purity. When the first birds were brought into this country then, they looked like mongrels, rather than pure line aristocrats. But persistent breeding and work has helped to bring back some of the purity into the breed. Originally these birds were small, of drab color, distinctively rumpless and had ear tufts. The rumpless feature has all but been lost and only very few individuals ever appear with the rumplessness, but the ear tufting has been brought back and colored strains have been introduced, so that the birds are found in white, black, brown and golden. Unfortunately the egg color has not been completely brought back either. Perhaps, however, this is not as bad as it seems. Instead of having chickens that lay just blue eggs, the modern Araucana lays eggs of blue, pink and shades of green. The chicks look more like game birds but show off their characteristics as they get older. Also, the original birds that were imported into this country some 20 years ago were extremely seasonal breeders but now the breeding season and egg laying period has been extended to some extent and egg production has been boosted. A national club has been formed which has many prominent members who breed and develop the variety.

Of course chances of the Araucana to sweep the country as a commercial bird are not great at all, but as a fancier's bird, they are quite unusual and very interesting. It is unusual to note too that percentage wise, the Araucana chicken has more dark meat than most other breeds. Maybe for this reason alone it could be incorporated into commercial lines.

It is not only in the Poultry world that there have come some unusual types of birds. In the Caged Bird Field many advances have been made. The all but unknown Australian Grass Parakeet has become the parakeet of thousands of homes. Talking and chirping, they have become the pets of hundreds and their color schemes vary from the unusual lutino and albino to the blues, greys, whites and the original green. One of the most perpetually caged birds is the canary and although through the years the bird itself has not changed much in song style and coloring within the past 10-15 years a great advance has been made. Up until about five years ago many people bought these exotic

(continued on page 19)

TREES AND CLOVER--COUSINS?

MANY of our forage and vegetable crops, such as the clovers, beans and peas, are considered, when we speak of the legumes. But what of the many other plants which also belong to *Leguminosea* family? There are several plants whose seeds adhere to clothing on contact. A common example of these plants in Bucks county are the *Desdemoniums*, of which *D. paniculata* is the most abundant on campus. Besides the herbaceous legumes, there are many ligneous plants of this family of aesthetic importance to the home owner.

The Kentucky Coffeetree, *Gymnocladus diocius* is another leguminous plant. It is the sole representative of the two species of this *Gymnocladus* genus in North America, the other, being native of southern China, *G. chinensis*, or more commonly known as Soap Tree.

The scientific name of our native species is of Greek origin *Gymnos* (naked), and *klados* (a branch), i.e., "naked branch." The leaves break out in the late Spring and drop early in the Fall. Thus it is leafless for six months or more and is called "Chicot" by the French people of southern Canada, which means "dead tree." The characteristic shape of the tree in its dormant condition is created by the development of its heavy ascending branches which produce a narrow, irregularly rounded crown with thick blunt-tipped twigs very noticeable during the winter.

The maximum thickness of the bark is approximately three-fourths of an inch, with dark gray to brown pigmentation on its outer surface, and reddish inner bark, which may be seen at the bottom of longitudinal furrows which are separated by sharp scaly ridges.

During the vegetative period of growth, this leguminous plant cloaks itself with double compound leaves which are three feet long and often two feet wide, with five to nine pinnately compound secondary leaves branching from the main stem. They are lustrous above and pale beneath. In early autumn, the individual compound leaflets turn a clear yellow and drop separately.

The seed pods, which often persist in a dry and rattling state into winter, are six to ten inches long and one to two inches wide with six or more beans per pod. The seeds are hard, round, flat, dark reddish-brown and three-fourths of an inch in diameter. This tree bears the largest tree pods on this continent. The pods are also filled with a sweet gummy, green protective material which is inedible, though the Chinese women use this same sticky pulp of their *G. chinensis* for washing the face, hence its popular name, as previously mentioned.

The American species name refers to the dioccious or polygamous flowers which are found on the tree from May to July. Dioecious is derived from Greek words meaning "two-houses." The pollen-bearing clusters are three to four inches long, while pistillate flowers are six to twelve inches long and slightly hairy.

Besides being used at times as an ornamental tree for bold plantings, this tree whose height occasionally reaches 100 feet and a diameter of five feet, is put to use in the lumber industry, though it is not considered commercially important because of its sparse distribution. It is found from the Appalachian mountains to the middle of Tennessee, where it usually grows as a solitary specimen with its trunk clear for seventy feet.

Its light red to red brown, coarse-grained, medium hard wood, has a weight of forty three pounds per cubic foot when air dry. The wood polishes well and is durable when in contact with soil.

An ornamental tree which is found growing along streams and in rich bottomlands, especially west of the Allegheny mountains where it forms abundant undergrowth, is scientifically known as *Ceris canadensis* or more commonly known as Judas tree or Red-Bud. The spreading branches form a broad irregular head when the tree is older, and it obtains a height of forty feet. It flowers early in the spring before the leaves appear. The flowers have an agreeable acid taste and are frequently used by the French in salads, made into fritters with batter, or pickled in vinegar.

Only *C. canadensis* is hardy in the North, while most of the other related species don't do well north of the New York area.

As an ornamental, the Judas tree is well suited for shrubberies or as a single specimen on lawns, while the wood obtained from this legume is heavy and hard, it is not too strong. It is a close-grained rich dark brown, tinged with red and with thin layers of lighter sap wood of eight to ten annual growth rings.

One of the most showy of the legumnous trees or shrubs is *Cytissus scoparius*, Scotch Broom, with its green stems during the winter months and its brilliant yellow flowers during early summer, Other species of this genus range in color from yellow, white, purple, to red.

Its habitat is central and southern Europe, but the plants were brought to this country as early as Captain John Smith's time by Virginia settlers, in which State it has escaped from cultivation considerably. It is also found in the Cape Cod region and in the Pacific northwest.

Cytissus is an extensive genus consisting primarily of hardy deciduous trees and shrubs. Even though there are many different species of this plant, none of them are particularly hard to grow since it prefers ordinary, well drained, sandy soil. It should be remembered that they are difficult to transplant when they are old. The plant is very deeply rooted and provides nitrogen to the soil as do the other members of the Leguminosae family. They do not retain their vigor and floriferousness for many years, thus one should keep a supply of young plants, which can be reproduced by cuttings or by seeds.

The genus name for Scotch Broom probably was derived because of the vigorous, dense, stiffly upright twigs which were used for making brooms in the Old World by cutting off the stems, trimming them and then tying them together at one end to a stout stick.

Thus, one can readily conclude that the legumes not only pertain to herbaceous plants, but also to many ligneous flora, which play an important role in our daily lives because their aesthetic value and economic importance.

WINGED WONDERS

by thomas hofmann '56

DO YOU KNOW the interesting facts about some of the birds of this region? Some are erroneously named which misleads many people to believe that they are destructive and harmful to the farmer. It is also believed that others eat eggs and kill song birds; and that some kill trees by boring holes in them. Well, this is part of the story of the winged creatures of the air of the northeastern part of the United States. Aside from a few being slightly harmful, the majority of the talked about birds are helpful to the farmer and the forester in many amusing and interesting ways.

The Blue Jay is one of the creatures that has received the wrong type of publicity. It is one among the many beautifully colored birds of the Eastern woodlands, especially during the winter months when its blue is contrasted against the snow covered pine. The plumage of this jay is not only beautiful around here, but also in many other states, and countries. There are Jays of Siberia, with fine fluffy plumage; Jays in Brazil, that are a harmonious riot of purple, blue, creamy white, and black; Jays of Canada, that are gray, white, and black; Jays in Mexico that are brilliant green; and there are also other Jays in America besides the Blue, although all of their predominant tones are blue.

But it is not his brilliant coloring or his conspiciously crested head from which the Blue Jay has received such names as Corn Thief, Nest Robber, and the Common Jay. These names have developed as a result of its eating habits. To correct the belief that the Blue Jay's main diet is made up of bird eggs, the government assigned naturalists to study its eating habits. Their analysis indicated that about 76% of the Jays' food consists of vegetable matter, with most of this consisting of acorns, chestnuts, and beechnuts. He also eats such insects as woodboring beetles, grasshoppers, eggs of various caterpillars, and scale insects, which constitute about 19% of his food. Predacious beetles contribute about 3½%. This leaves but 1% of the Jays' diet made up of eggs, mice, fish, salamanders, snails and crustaceans. They do not eat the seeds of poison ivy and sumac; thus distribution of this plant cannot be attributed to it.

To the forester, he is especially appreciated in his ability of replanting cut pine stands with oaks and beech, though beech is detrimental to the growth of seedlings, because of the heavy shadow it casts on the forest floor. This operation is carried out during the fall of the year. He carries one acorn at a time in his beak, and the rest in his crop. When he reforests, which is usually confined to one section at a time, he places them into the soil where there is a pine needle carpet. The Jay far more often covers the fruit with needles, than he leaves them uncovered. He never puts more than one acorn in a hole, so that a correct and useful stand of trees results. Here and there he sows in rows, again, keeping the correct planting distance.

Besides this fascinating characteristic, the Jay is a ventriloquist, in that he imitates the voices of the Magpie, the Shrike, the Thrush, and the Starling. He also has the ability of imitating the buzz of a saw, or if they feel like, the human voice. As a result, he has, on more than one occasion, caused a dog to chase cows.

The Blue Jay excels in mimicry. Their frequent and almost perfect imitation of the whistled scream of the red-shouldered hawk is outstanding. His cry is so near perfection, that in many instances it deceives the ornitholigical student. He not only gets enjoyment in teasing smaller birds, but also owls. The Arizona Jay even teases the rattlesnake.

Another widespread winged creature that is talked about is the Crow. Only New Zealand and portions of Polynesia are without representatives, the group having developed in the northern hemisphere.

The Crow is unmistakingly a remarkable bird of North America. There is no law that protects him, and it is hard to find a farmer who does not shoot a crow when he gets the chance. The reason that the crow has few friends is a result of the common belief that his main diet is composed of young corn, that he destroys chickens, and that he robs the nests of small birds.

They eat corn extensively only when it has been softened by germination or partial decay, or before it is ripe and is still in the milk stage. Experience has shown that they may be prevented from pulling up the corn by tarrying the seed, which not only saves the corn, but forces them then to turn their attention to insects. To familiarize people on the diet of this bird, trained naturalists carefully investigated the Crows' eating habits over a period of years, and then to their surprise, they reported that this bird was not as bad as thought. He eats many grubs and insects, and on the whole does more good than harm. They also eat fruit to some extent, but confine themselves for the most part to wild species such as dogwood, sour-gum, and the seeds of various sumac species. Predacious beetles are also eaten throughout the season, but not in great numbers. June beetles, and others of the same family constitute the principal food during the spring and early summer. These insects are fed to the young in great quanities. Destruction of mice may also be added to his credit.

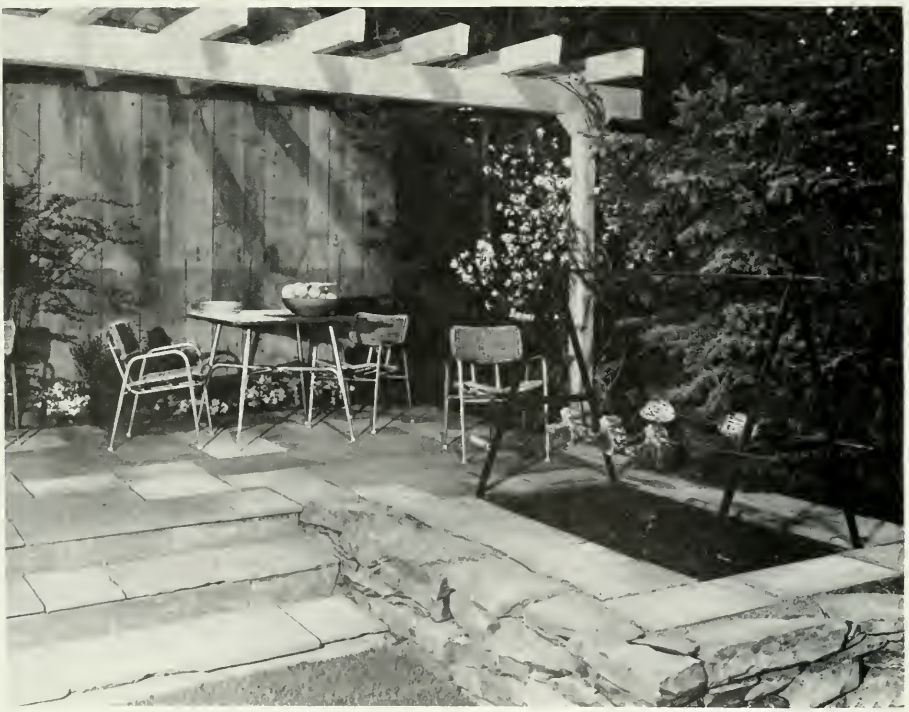
Besides these commonly seen birds, the members of the *Butionidae* family, of which the birds of prey—Eagle, Hawk, and Kite belong. They are found in both the Eastern and Western Hemispheres. In the United States and Canada there are twenty species of regular occurrence and accidental occurrence.

The young of this family grow very slowly and require a large amount of food. Even the adults are large eaters, feeding to the utmost when the opportunity presents itself. Hawks and Owls often swallow their smaller prey whole, while the larger food is torn into pieces and eaten after each piece is removed from the carcass. After the nutritive portions are absorbed into the blood stream, the undigestable products are rolled up into a ball by stomach action and regurgitated before any further food is taken into the digestive system.

One of the best known of these carnivorious birds is the Sharp-shinned Hawk, also known as the Chicken Hawk. This bird, with a body a little bigger than that of a robin, upholds the tradition of the destructiveness of the Hawks. Opinion has gradually crystalized that the three hawks that deserve extermination are the Cooper's Hawk, the Goshawk, and the Sharp-shinned Hawk.

The murderous habits of this bird are overwhelming. Any small bird

(continued on page 26)



How Did Our Garden Grow

by paul lepard '57

ISN'T IT BEAUTIFUL? Look at the bar-be-cue pit! Where did the furniture come from? What time are you serving the steaks? Isn't the sod beautiful!"

If some of the junior ornamental horticulture students would have "taped" some of the comments made in front of the Country Garden in the Philadelphia Flower Show, this is what they would have sounded like upon reproduction.

To many people, thoughts about seeing the beautiful garden retreats, formal gardens, and the latest developments in home gardening begins about two weeks before the annual Philadelphia Flower Show opens its doors. Maybe they are drawn to the flower show by the write-ups in the local papers, or the colorful and "spring-ish" posters may attract them. But the Ornamental Horticulture department at the college start combining ideas early in the first semester.

After the Flower Show Committee makes their decision as to who will be invited to exhibit in the center aisle, the exhibitors are told what kind of garden they must portray. This year the center aisle was composed of four city gardens, four suburban gardens, two country gardens, and one natural scene. Thus, giving the idea of walking from the city to suburban to country, and to wilderness. N.A.C. was chosen to be the "Country Cousins" and exhibit a garden that might be found on a farm. This is how it all started.

Actually, what would make a country garden differ from a suburban garden? Country folk these days have the same facilities as city folks do. How can we make our garden different and still have the country atmosphere? This was the problem we were faced with.

After much deliberation and planning the sketch for the design to be exhibited was finished. The model was certainly different; the reason was a barn! What city garden has a barn, but doesn't every countryman have a barn on his property?

Looking at the final drawing, we see a corner of a barn with an extended flagstone terrace, open bar-be-cue pit, grapes growing overhead, selected plant material that tell you one thing — you are 'way out in the country.

After the heavy brain work, now the hard and manual work begins. In our practicum classes, we dig, ball, and burlap grape vines, white birch, hemlock, yew, and holly, and put them in the greenhouse to force them. Then we go to a local nursery and pick up twenty azaleas, and also put them in the greenhouse to force them into flowering. Just because they are in the greenhouse doesn't mean that we are through with them. Daily we syringe them to help those buds to break. Next our one hundred square feet of sod is sown. For this, a mixture of rye grass and a little Kentucky blue grass was used.

Meanwhile, the college carpenters are building our section of the barn that reaches a height of twenty feet in the farm shop. The bar-be-cue frames and pit are also being made in the forge by Mr. Hopkins.

Before you know it, the week before the flower show arrives, and now the work is up to the junior Ornamental Horticulture students, who set up the exhibit each year.

Monday and Tuesday are spent transporting and assembling the barn in sections to the Commercial Museum in Philadelphia. After the barn is constructed, we know that our exhibit will be seen from every corner of the show. On Wednesday twelve tons of rock and stone are dumped in front of the naked exhibit, and the construction of the eighteen inch dry wall, encompassing the exhibit begins. On Thursday, all the plant materials, including two twenty-four foot just-cut evergreens are transported to the museum. The last two days are full of hustle and bustle. Now you can see the exhibit taking form. You no longer see the skeleton, but blooming dogwood and magnolia, and the white trunk of a birch that adds color and excitement. You look around you, and other exhibits are progressing too. On Friday, you know that no matter how late it may be, you must finish your exhibit today. The sod is picked up at the greenhouse, and you start the fullest day of show preparation.

First, you put up the twenty-four foot evergreens that give the barn an even more massive look. Then you start placing the plant materials, and walking away from the exhibit, looking at it from all angles, making sure its placement will make the best showing. The dry wall is completed, and before you know it, the flagstone is laid and the terrace is beautiful and comfortable looking. The wide steps leading to the terrace are so inviting that you actually want to climb them, and as for the steaks on the bar-be-cue, although artificial, your mouth is watering at the reality. The sod is cut and laid, and things are almost completed. Before you know it, there is a four gang disk sitting at the side of the terrace in front of the barn door. The next plant material to be placed is the grape vines that are placed on the overhead above the terrace. Now you add some azaleas and then holly to a planting area between the barn and the terrace. Other azaleas are then spotted in their position within the other plant materials. Peat moss covers the bed to add to the final appearance.

Now last minute touches are made. The terrace is swept, a hex sign added to the side of the barn, terrace furniture placed, and a bowl of vegetables placed on the table.

It's all done!

At eight o'clock in the evening, for the first time, you can stop and look at your completed work. With all of the work involved ask any Junior Ornamental Horticulture student if he would do it again. You bet your life he would!

By working at the show, you have noticed how all the other exhibitors have helped you in many ways; there is no cut-throat competition at all.

(continued on page 18)

BUGS!

THE TRUTH ABOUT DIPTERA

by walter kendzierski '57

INSECTS, AS OTHER CLASSES of animal life, have their own characteristics and life stories, which as you will find, are quite unlike man's. Of course, only a fraction of the total truth about the insect world has been discovered, but here are a few samples which you might think of the next time a fly or mosquito takes a tasty morsel of your flesh, instead of calling it a nasty and probably undeserving name.

Nearly 750,000 species of insects have been classified and about 4,000 new varieties are found every year. The members of this vast and amazing group of creatures have taken countless strange shapes and habits, thus enabling them to cope with life under almost any circumstances. Giants and dwarfs among the insects, cover a wide range. There are insects so tiny and so intensely specialized, that they live on the tongues of horseflies, while others, like the great Atlas moth of India, have wing spreads of a foot-and-a-half. The East Indian Walking Stick measures 15 inches in length. In addition to size, countless oddities of form occurs in insects. Enormous forelegs, more than twice the length of the rest of its body, are the characteristics of a black wood beetle. It covers a space of eight inches, with all of its appendages extended. There is also an antlered fly, with various protuberanches on its head that suggest the horns of deer in miniature. Even more surprising is the stalk-eyed fly of South America, whose eyes are extended out from the sides of its head. The stalks are drawn out to such surprising length that the measurement from eye to eye is one third more than the length of the body from head to tail.

Abdomens of honey ants have the ability to expand enormously. Certain members of the colony, who never leave the nests, act as storage vessels for the honeydew gathered by the workers. With abdomens so swollen that they cannot walk, they cling to the roof of their underground chamber regurgitating food to the workers when it is necessary. The insects, and other lower forms of animal life, have learned to adapt themselves to their environment. For instance, oceanic water-striders skate over the waves hundreds of miles from shore. They lay their eggs on floating feathers and other bits of refuse and often live their entire lives without ever seeing land. In Ecuador, butterflies are found among the crags of the Andes, 16,500 feet above sea level, while explorers, scaling the Himalayas, have come across a praying mantis almost as high.

Snow-white and blind insects live deep beneath the earth's surface in caverns. Springtails skip across snowbanks during February thaws in Northern states. Certain flies breed in the brine of the Great Salt Lake and a number of insects make their homes in the dangerous confines of insectivorous pitcher plants. One curious little larva spends its early days swimming about in pools of petroleum, breathing through a tiny tube which it thrusts above the surface. Another insect is about to live in the mud of hot springs where the water reaches a temperature of 120°F. The ice bug, or alpine rock crawler, which dwells in cold mountain recesses at an elevation of about 5,400 to 8,600 feet above sea level prefer temperatures of about 38° F and if the mercury rises to 80°F, it may suffer from heat prostration.

The diets of insects are as varied as their life habits, and some insects have a taste for often surprising things. The drugstore beetle is known to consume 45 different substances, including some poisons. Other beetles feed on cigarettes, mustard plasters, and even red pepper. Termites are able to digest cellulose in wood because of minute organisms within their intestines.

In order to perpetuate the species, the insect portrays extreme skill and cunning. For example, an instinctive strategy used by a queen ant found in Tunis is, after the nuptial flight in which she is fertilized by a male, to descend near the nest of a larger species of ant. Workers seize her and drag her into the underground cham-

bers. There she takes refuge on the back of the queen and remains unmolested. Waiting for the right opportunity, she eventually overpowers the rightful queen and is accepted as the new queen by the workers. Her eggs develop workers of her own species and in the end, the colony is made up of the smaller ants.

Even more remarkable is the means of transportation of the botfly eggs. The female fly makes no effort to lay her eggs on the ultimate victim. Instead, she visits swampy lowlands where mosquitoes are emerging. There, she quickly overtakes a baffled mosquito, grasps it, and swiftly deposits minute eggs on the underside of its abdomen. Then she releases it and flies away, her mission accomlished. The mosquito eventually lands on a human being. The eggs are heated when in contact with the skin of its victim, and hatch while the mosquito is sucking blood. The tiny larvae then burrow into the skin of their unwilling host.

A number of insect oddities are revealed when the insects are defending themselves against attack. The blister beetle of Southern Europe is equipped with a caustic fluid that protects it from its enemies. A number of common insects, such as the lady beetle, have weak places at the joints of their legs, which rupture to let out drops of disagreeable fluid when they are attacked. The monarch butterfly reduces its chances of being attacked by birds, by possessing a very disagreeable tasting blood.

When it is being pursued by an enemy, the bluish-black bombardier beetle, ejects an acrid fluid which is discharged with a distinct popping sound and a small cloud of vapor that looks like the smoke from a miniature cannon. This gas attack takes the pursuer by surprise and stops it momentarily, thus giving the beetle ample time to escape.

Despite this immense diversity, all insects have certain things in common. The lovely monarch butterfly beating its beautifully patterned wings in the summer sun, seems utterly unlike the hard shelled, tiny cucumber beetle crunching merrily away at a prized cantaloupe or squash plant. But basically they are all a similar kind of creature.

An insect has no bones. It wears its skeleton externally and from man's point of view, it is built inside out and upside down. Its heart is on top near its back. Its legs are tube-like sections of its skin-skeleton plate armor with muscles, nerves, and soft tissues carried protectively inside. The engineering of an insect's leg makes it, for its size, the strongest supporting device possible. This strong pliable external skeleton provides even the most fragile-looking insects with outstanding durability. Monarch butterflies seemingly as strong as a blown thistle seed, make migratory flights from Canada to Florida and back again. Painted lady butterflies have been found to make a gigantic journey from North Africa to Iceland, although storm-tossed, lashed by rains and gales, they often reach their destinations with wings in tatters.

With an outside skeleton, there is no room for expansion. Growing insects must periodically molt. The horny casing splits and the insect creeps out in a soft skin that is boneless. To make its new skeleton form in a bigger size, the insect swallows air or water and waits for its roomier skeleton to harden around it. The insect's blood is not confined by any system of veins, as in human beings, but forms a single artery, which runs from the heart to the chest. The blood surges and seeps through the whole body. The blood is forced to the extremeties by little auxiliary hearts.

For an insect, breathing is another remarkable process, because it has no lungs, mouth, or nostrils. Along its sides are symmetrical rows of tiny perforations, each an air duct. Inside they branch from two main lines to hundreds of air lines running to every area of the body making the whole insect a continuously operating air-conditioning unit. The insect needs relatively little oxygen while at rest, but in flight it must breath extremely hard. It must be able to suddenly call upon as much as 50 times the normal amount of oxygen. Its beating wings bring this about. As the wing muscles contract they force out almost all the air in the system; as they expand, fresh air rushes into the ducts. There occurs an almost complete change of air at every wingbeat.

The power of an insect's wings is most extraordinary; for example, a dragonfly carrying its body on wings thinner than the finest paper can cruise along at forty miles an hour. A mosquito bloated with blood, carries a load twice its own body weight. To do so, it beats its wings more than 300 times a second. This may seem unbelievable, but by no means unique if one considers the midge, whose wings are beating more than a thousand times a second. The little flea that spends its leisure hours hopping aboard our favorite mutt is able to do so because it can make a leap of 100 times its own height. If man had a jumping power, proportionate to a flea's, he could jump over the Washington Monument.

Insects have only rudimentary brains and they are guided through life by strange sensory hairs, sensitive to sound waves, and tympanic membranes like our own eardrums. They are distributed on many areas of the body. Crickets have ears on their knees. Cicadas have ears in their abdomens. A water beetle hears with his chest. Katydids have supersonic hearing. Acute human hearing seldom ranges over 20,000 vibrations per second. Katydids can hear over 45,000. Many insects hear sounds outside our human range and may communicate with mating calls and messages when we think they are silent.

In its capacities to taste and smell, the insect has an outstanding sensitivity. It has taste organs in its mouth, but it also has the power to taste in numerous other ways, for instance, butterflies and bees can taste with their feet. The extreme limit at which human taste can detect sweetness is in a solution of one part sugar to about 200 parts water. Some moths and butterflies can detect the presence of sugar when it is one part in 300,000. The same with scent. Some male moths are able to catch the scent of a female nine miles downwind on a windy day.

The insect is one of man's fiercest enemies and much has been done for its control, but one must realize that many comforts and luxuries, much food, certain dyes and medicines and our choicest clothing come from insects. Insects are useful in scientific investigations, in surgery, in improving soil, in pollinizing fruits, flowers, and vegetables, in checking weed growth, as scavengers, and as food for birds, fish and even for man. Also the future of our race may be greatly benefited by knowledge gained from the study of inheritance in insects.

So "Mr. Insect" is not to be taken lightly for our life on earth may possibly depend upon the marvel of his being.

Green Feed

by gilbert s. trelawny '57

The Need for Forage Crops

FORAGE CROPS which are fed as a partial fulfillment of the diet of livestock must be considered on the basis of their energy and protein-supplying content. The energy-supplying nutrients are needed in larger amounts than are the protein-supplying nutrients because the former are required for maintenance, growth, and production. These constituents must be present at an adequate level in the forage plants as the livestock cannot consume enough roughage, even of good quality, to insure a sufficient intake of energy-supplying nutrients. This inadequate consumption of energy nutrients is overcome by supplementing the diet with grain. However, if the roughage is of poor quality, i.e. low in energy content, there must be an increase in the amount of grain fed to compensate for the difference.

Protein is also a necessary nutrient and should be supplied in definite ratios with that of energy-supplying nutrients. These ratios will vary depending upon age, production and type of animal.

In order to obtain the highest yields of energy-supplying nutrients, the crops should be immature and very digestible. It has been found that bromegrass contains one and a half times the quantity of total digestible nutrients (TDN) at the six to twelve inch stage as it does in the late flowering stage. The TDN increases until the plant starts to head. After this time the rate of increase tends to decline until the plant flowers. After the flowering stage there is no increase in the TDN. It is apparent then, that to obtain the greatest amount of TDN, the plants should be harvested at the flowering stage. However, the energy value of the immature or early cut crop is of greater value than the energy obtained from the mature crop. It is true that the total yield per acre will be less in an immature crop, but since its feeding value is greater, it will more than compensate for this difference. The amount of supplemental feed is an important consideration as it has been shown that the energy from grain is 2.5 times more expensive than that derived from roughage.

The Feed Reserve

The feeding value of forage crops can be preserved for future use by making silage. Silage should be made and stored in such a manner as to reduce aerobic activity and prevent any objectionable anerobic processes. Aerobic activity may be minimized by cutting the fodder into fine pieces which will facilitate the packing of the material so as to exclude most of the oxygen. At the exposed surface of the silage there will be mold growth due to the abundant supply of oxygen. This growth may penetrate to a depth of about a foot, but will not go much further as the supply of air to the deeper areas of the silage is reduced. It is very important to keep the amount of air in the silage to a minimum, as excessive oxygen will increase aerobic activity and result in losses of the nutrient value of the feed.

Anerobic fermentations which result in putrefaction and production of undesirable acids can be prevented by lowering the pH of the silage. Lactic acid fermentation, or added inorganic acids will achieve this end.

Moldy silage, aside from resulting in feed-value losses, may harbor animal pathogens. Also, if the silage has undergone putrefactive changes the degradation of the protein may liberate substances that are toxic to the animals. In the last analysis, silage that is moldy usually is not palatable, thereby reducing the consumption of the feed and the production of the animal.

The loss in energy due to the changes in the carbohydrates are the result of the formation of organic acids produced by anaerobic activity. The more important of these acids are lactic, acetic, and butyric. Lactic acid, however, is beneficial and is present in the greater amount, generally comprising about one to two percent of the silage. It is this acid that greatly aids in the production of a pH of between 3.5 and 4.2 in good quality silage. This is true not only because it is present in greater quantities, but that it also has a greater dissociation constant than either acetic or butyric acid.

The protein is broken down to some extent into amino acids by intrinsic tryptic enzymes of the plants. This protein is also attacked by soil microorganisms which are present in the silage. The end products of this protein degradation are also organic acids, but in this case the chief acid is butyric along with ammonia, amides, and amines. It is these proteolytic organisms that must be held in check otherwise objectionable substances may be produced in the silage.

Proper Methods

Lowering of the pH to about 4.0 will help to prevent undesirable proteolytic action and butyric acid formation. As previously stated, this increased acidity may be accomplished either by encouraging lactic acid fermentation or by the addition of acids directly to the silage. With silage rich in protein, acid will have to be added to achieve a pH of 4.0, as there is less lactic acid fermentation. Also high protein plants; i.e. legumes, have bases which form buffers that tend to resist pH changes.

Lactic acid production may be stimulated by the addition of molasses which is high in carbohydrates, or by other carbohydrate foods such as crude sugar, ground grains, potato flakes, whey paste, etc. When the carbohydrates are added, the excess water must be drained, or there will not be a high lactic acid production. In cases of water-logging there tends to be acetic and butyric acid production. These acids generally give rise to higher feeding value losses than do lactic acid fermentations.

Losses in dry matter, crude protein, and carotene are due to surface spoilage, drainage and fermentation. The surface losses can be reduced appre-

(continued on page 22)

SPORTSLITES

BY STAMMEL

SPRING IS ONCE AGAIN upon us heralding another baseball season. The only member missing from last year's team, which compiled a 5 and 2 log, is co-captain, outfielder Harry Conover. This will mark the first time that any of the major athletic teams from the college have been entered in a league. The baseball team will play in the Delaware Valley Conference against Rutgers South Jersey, Glassboro State Teachers and Kings College. Returning to action this year are pitchers Sid Blair (3-0) and Bill Scott (2-2). The mound staff is bolstered by the addition of lefthander Malcolm McCarthy. Behind the plate is senior Benny Barge who was the team's leading hitter last year.

Vying for infield positions will be Ron Stammel, Charlie Indek, Skip Thompson, Walt Kendzierski, Dave Weinberg, and Bernie Bunn. Candidates for the outfield positions are Paul Chubb, Tom Watson, John Lesko and Alan Smith. We are looking forward to a fine showing from the team this year.

Another first for N.A.C. this year along the sports line is the ping-pong teams. A tournament was held in the game room to find the best players in college. Those chosen were Pete Stollery, Barry Tomshe, Irv Novak, Dave Ezickson, and Bruce Holck. After a week of practice under the watchful eye of Coach Josh Feldstein, the team journeyed to Philadelphia to compete in the Delaware Valley tournaments where they were defeated in the semi-finals by Philadelphia Pharmacy, the eventual winner. We are quite proud of the showing the team made, and expect an even better one next year.

Let's take a final look at the 1955-56 basketball season. The Aggies finished with a 7 and 12 record. From the looks of things the "hoopsters" saved their best until last but it wasn't quite enough as NAC dropped a heartbreaking 96-90 decision in their last outing to twice beaten Philadelphia Textile. Richie Prins hung up 29 points in the game to bring his 2-year total to 701 points. Barring accident, Richie seems a sure bet to go well over the 1000 mark next year and break the College record which now stands at 1007 and is held by Jim Lipari, '53. Richie already holds the single game mark of 41 made last year against Kings College.

The J.V. team also completed a most successful season as they closed out with a 73-38 win over Jersey City J.V.'s at the North Jersey campus. The win gave the team an overall 4-2 record, which is commendable, for this is the first year we have had a J.V. program.

Leading the way was 6'4" Dave Bjornson from Willow Grove, Pa., who had a 20 plus average for the season. We hope this will pave the way for a new phase in sports at N.A.C.

Another addition to the sports lineup this year will be spring football practice. Workouts were under the direction of Coach Pete Pihos. This will give fellows a chance to really learn the system to be used next fall. More time can then be devoted toward conditioning that will carry the boys through the long season.

N.A.C. will have a new head football coach in the person of Pete Pihos former Philadelphia Eagle end. Coach Pihos has assumed his duties with the start of Spring practice. Former Coach Charles Keys leaves his position after compiling a very commendable record of 18 wins, 14 losses, and 1 tie. Coach Keys gave N.A.C. the first winning seasons in the history of the College in all three sports in 1954 and 55. He has not yet announced his plans for next year.

Well, fans, it looks like it's time to close the locker room doors for the last time and we hope you have enjoyed reading "Sportslites" as much as we've enjoyed writing it. Best of luck to all the teams next year and in all the years to come. If you don't play a sport get out and support the teams; *they belong to you!*

HONOR AGGIES

(continued from page 5)

years, he was basketball manager, a position where the ability to get along with people is a requisite. Kirk showed his leadership qualities all through his stay at N.A.C., and held positions that require wide-awake action. He was co-chairman and chairman of the "A-Day" committee in his Junior and Senior years respectively. He was treasurer of the Glee Club in his Sophomore year, and vice president in his Junior year. He is also active in the Student Council, of which organization he was secretary, and chairman of the Student Activities Committee in his Senior year.

For his Sophomore summer practium, Kirk worked at Roy Varner's Dairy Farm with their 100 head of registered Jersey cattle. In his Junior year he worked at Watson's Turkey Farm, Sewell, N. J.

Kirk says his plans for the future consist of a definite stay with "Uncle Samuel" for two years. Afterward, he is not entirely sure of what his future may hold in store.

As to memories, Kirk says he will cherish most of the acquaintances he made here at N.A.C.

So-long, Kirk, and good luck.

\+ + +

CONSERVATION

(continued from page 7)

farm. To them I would personally add the planting of wind breaks in wide areas of cleared land, as a protection against evaporation from the soil at all seasons. See Figure 2.

In forests, an immediate measure of water conservation is to exclude domestic animals from the farm woods, but our great task is to increase the density and improve the composition of the existing natural stands. Forest Research has taught us that certain tree species — the very valuable ash, for example — produce leaves that are particularly palatable to earthworms. The soil beneath hardwood stands having a goodly proportion of ash are riddled with burrows of the earthworm, and absorbs rain or melting snow at a maximum rate. The heavy leaf litter of well-stocked forest stands of every species is a guarantee of rapid infiltration. We should apply our knowledge of such facts throughout our farm woods, as well as in the more extensive commercial forests of the Northeast.

GOIN' FISHIN'?

(continued from page 8)

bottom of the stream. I found that this rig, when fished properly, will fool any minnow feeding trout in any stream during April.

Spin fishing with lures is another productive method of catching trout. The rod is important, but it's the reel that actually makes the difference. The spinning reel uses a "fixed spool" principle which enables even a beginner to cast a small spinner or spoon in to parts of the stream that would otherwise be impossible to reach. Small spinners and spoons will sometimes take trout regardless of how they are handled and some people will say it makes trout fishing too easy. When spinning equipment first became popular there was talk of outlawing it due to this fact. Spinning has its problems — you must know your lures and how to fish them.

You'll need a variety of spinning lures to be equipped for varying water conditions.

I have fished a good many shallow streams with a spinning rod in the past few years and have worked my approach down to a system. The best way to fish shallow water is straight down with the current. An up-stream or cross-stream cast will snag bottom. By casting down stream and closing the pick-up finger of your reel an instant before the lure touches the water, and at the same time lifting upward with the rod. I have complete control over the lure, and it makes little or no disturbance on the water. I use an eight ounce wobbler called "Phoebe" that will flutter on the surface and kill until I start reeling, and then it's simply a case of steering the bait behind rocks and under banks always pausing for a few seconds "troudy" looking places. The lure lies in the current with a darting action that brings reluctant fish out of seemingly barren places. There are two other lures, the "C. P. Swing" and the "Mepps Spinner" that are excellant lures for this type of fishing.

In fast, deep water you need a lure that will work deep and hold the current. You should be able to toss this lure into a fast run, and by feeding the line very slowly have it hold in the current instead of pulling to the surface. I prefer two spoon type lure for fast water; "Dare Devil Midget" and the "Wob-l-rite".

Fishing, in my opinion, is the greatest of the outdoor sports. It is not only relaxing but it gives you a chance to get out into the fresh air.

\+ + +

FLOWER SHOW

(continued from page 13)

At the show, you are also able to see how other men go about putting together their exhibit. You can talk to them, and through conversation, you may often make contacts for employment after graduation.

Since exhibiting in the center aisle is done only upon invitation no judging is done there. In other years when not in the center aisle our college has always placed first in our class. Two years ago, our garden retreat received the silver medal, which is the highest honor given at the show. So you see National Agricultural College has quite a reputation for excellent performances in the Philadelphia Flower Show!

ACCORDING TO THE CHAMBER

(continued from page 4)

look "official"; so these are half-truths posing as the whole truth.

The release continues: "In addition you would pay the costs of sending your money to Washington and back. And every dollar loses weight in the round trip to Washington." The Chamber admits, here, that every dollar sent to Washington does come back. We take this to mean, then, that we aren't paying as much taxes as we had been led to believe just a sentence or two before. There is no argument about the loss in weight in our tax dollar during its short stay in Washington. It costs money to run a government, and we must pay it, if we are to enjoy such benefits as school construction programs.

To continue: "But there is another cost—even more damaging—the Chamber warns. This is the very probable loss of control over school construction in your community. For the bill provides that a Federal administrator would have control over priority of construction projects, standards for planning and building schools and wage and hour standards of labor. What's more, says the Chamber, you'll pay the administrator for telling you what to do."

The Chamber does not say that this would finally force integration in our Southern schools; the people would want to get their tax dollar back so they wouldn't have to pay as much state school tax. In doing this they would have to accept the law as interpreted by the Supreme Court. Again, past experience has shown that when the Federal government in some way controls the labor-wage situation, labor benefits with a higher wage. The government would make the requirements for teaching more uniform, and would standardize the wage. This would result in making teaching an attractive profession, and would eventually help wipe out the teacher shortage. As for priority of construction, a Federal observer, who has seen similar situations; who has had the benefit of years of experience would probably be more expert than the local school officials.

Concluding: "Is this the way American parents want their schools built? Our entire history, says the Chamber, refutes this view."

Obviously it *is* the way they want their schools built, or the present bill would not have been passed by their representatives in Congress. By calling to mind "our entire history" and stating that we are Americans—just as placing a question mark over George Washington and putting the "rugged individualist" as a dunce in the corner — the Chamber implies that it would be un-American for us to accept Federal aid for school construction. By having one very mean looking teacher read a book titled "Honor Thy Government," we are made to appear as almost a totalitarian state. Rather than set down any arguments, they are appealing to feelings as Americans.

One wonders if the Chamber will release similar stories against the road improvement program that will make it easier to get to town and buy from our local business men — many of whom are members of the Chamber.

\+ + +

GALLUS - GALLUS

(continued from page 9)

orange canaries only to find that after the birds moulted once, their canary turned out to be just a plain yellow canary. This coloring was achieved by feeding the bird when young, a mixture of egg yolk and paprika. Now it is possible to get beautiful orange birds with superior singing qualities and these traits will remain with the bird for its life. This is because the characters have been bred into the bird by the use of a common South American finch known as the Black Hooded Siskin. This bird, a beautiful finch of black and orange markings, when crossed with the common canary will produce fertile offspring, unlike most other finch-canary crosses. The first two generations of birds of this cross are brown in color, but upon crossing the second generation, the third generation shows the beautiful tones of orange and apricot, some frosted over with white.

Man, using the facilities offered to him by nature, has developed from one individual type, hundreds of useful and ornamental members of the feathered world, each with their own characters and oddities.

NOTES AND NEWS

—ON CAMPUS—

by frank wojtowicz '58 and gil finkel '57

IT'S AN HOUR before air time—we are witnessing the second, and last, rehearsal for the second "FARM" program to eminate from our greenhouses and propagating beds. Mr. Blau is on camera explaining the complexities of some piece of nursery equipment to the emcee. The cameraman is discussing a focus problem with the director, who seems practically to live in the control room in the Botany Lab. The front element of the Zoomar lens is changed three times — one is finally decided upon, and the rehearsal continues.

Time is growing short—last minute changes are made in timing certain portions.

The sun is rising higher in the sky — that changes the lighting conditions. A major change is necessary if one particular portion of the show is to be seen with maximum clarity and detail.

The cameraman complains about poor focus, through his intercom, to the director. The director asks for a fix — the cameraman chooses some animals on a distant field; animals the human eye can't see. Some adjustments are made, but the focus is still poor. The lens is changed once again.

Five minutes to air time.

The rehearsal is cut short.

The opening angle is not yet definite.

The front element on the Zoomar is changed again.

Fixed! The cameraman no longer complains of poor focus. He waits for his cue.

Mr. Blau seems to be reviewing the next hour in his mind. He walks about a bit self-consciously, making oversure that his microphone cable doesn't tangle.

Stand-by, please.

The hand is raised — the assistant director waits for the cue — the hand is brought sharply down. You're on!

"Good morning, ladies and gentlemen. . . ."

The crew of technicians wait—wait for trouble to develop. The wires leading to the camera tangle around the tripod. The cameraman nearly falls from his perch on a table. All the while he is carrying on a conversation with the director, trying to find a good closing angle. We're running four minutes late. Suddenly, some minutes later we're running ahead of schedule. The closing angle is decided upon and changed and finally chosen definitely.

Mr. Blau continues with the program.

Suddenly there is only two minutes left. The assistant director motions to

(continued on page 23)

NOTES AND NEWS

—IN AGRICULTURE—

USDA Announces Change in Commercial Beef Grade Effective June 1

Commercial grade will be divided into two new grades — Standard and Commercial. Present grades are Prime, Choice, Good, Commercial, Utility, Cutter and Canner. Division of Commercial grade is being made on basis of maturity and the grade "Standard" will be applied to beef from younger animals of the grade. The name "Commercial" will be retained for beef from mature animals falling in the present Commercial grade. Revision was recommended by the Cattle and Beef Industry Committee and was published as a proposal in the Nov. 15, 1955, Federal Register. Present Commercial grade included carcasses from animals within full range of maturity as animals are marketed. It differs in this respect from the Prime, Choice and Good grades which are restricted to carcasses from relatively young cattle.

GYPSY MOTHS SPREAD to large new areas of northeast during 1954 and 1955 — Tree attacking gypsy moths have spread to some 8,750,000 previously uninfested acres of Vt., N. Y., Conn., N. J., and Pa., and to a small spot in Mich. during the past two years. Before 1954, the insect was found on some 30 million acres in New England and New York. A summary of 1955 gypsy moth conditions is included in the weekly Cooperative Economic Insect Report. This insect or its eggs have been found at points previously known southern and western limits of gypsy-moth infestation in recent surveys — from Long Island to limited areas in northern N. J. and northeastern Pa., to the southern foothills of the Adirondacks and west to Utica, in the Mohawk Valley of New York.

SCIENTIST SEEKS insect enemies of halogeton, poisonous range weed—USDA entomologist G. B. Vogt leaves this spring for North Africa and the Near East in an attempt to bring back to this country insect enemies of noxious weeds, including halogeton and its plant relatives. Halogeton is an Asiatic weed that poisons sheep and occasionally cattle. Gaining a foothold in this country more than 20 years ago, it has invaded all of the western States except Washington, Arizona, and New Mexico. The weed now infests more than 9 million acres in the West. In Asia, the weed is not a particularly important range pest—possibly because some native disease, insect, or other control, is holding it down. Even if a halogeton-destroying insect or disease is found, it would have to be tested carefully to be sure it would not harm domestic crop plants.

Simple Method for Treating Fence Posts Developed For Home Owners

Home owners can treat their own fence posts against decay and termites by a simple soaking process developed by USDA's Forest Products Laboratory. By standing the round green post first in a water solution of copper sulfate and a water solution of sodium chromate, the two chemicals diffuse into the post and combine to form copper chromate. This combination is toxic to fungi and insects, practically insoluble in water, and will not leach from wood placed in a damp soil. Of 100 pine posts thus treated and set in 1942 in Miss. (a region of high decay and termite hazard where the average life of untreated pine posts is about 3 years), only one has decayed. The average life of hardwood posts also has been extended considerably by this treatment. Equipment needed to carry out this treatment is commonly found in most homes: a scale to weigh the chemicals or a 1-lb. coffee can, a 10-qt. pail, and two barrels, one of which must be wooden or concrete. The 25 lbs. of copper sulfate crystals and 25 lbs. of sodium chromate powder needed usually can be ordered through a local hardware store. If not, the laboratory at Madison, Wis., has a partial list of companies handling the chemicals.

Regulating Length of Day Offers Nurserymen Valuable Tool in Growing Popular Shrub

By manipulating light and darkness, nurserymen can control growth of the shrub, Weigela. Practical use of this photoperiod research should make Weigela cuttings more readily available for spring planting. Tests show that growth of this landscaping shrub in the greenhouse can be increased by using lights to extend daylength, or can be curtailed by restricting the daily duration of light reaching the plants each 24-hour period. Applying these findings, a nurseryman could almost tailor-make his Weigela stocks for the spring market during fall and winter—when this plant normally grows very little. By using ordinary electric light bulbs to increase daylength to 16 hours, he could rather quickly produce growth for an ample supply of softwood cuttings.

USDA Scientists Study Promising Antibiotic Mixture For Control of Bean Rust

An experimental antibiotic mixture, F-17, developed and tested by scientists of USDA, has effectively controlled bean rust in preliminary greenhouse tests. F-17 is a crude culture filtrate, containing three and possibly four antibiotics, which has resulted from a two-year search for chemicals with plant-disease control potential at USDA's Northern Utilization Research Branch, Peoria, Ill. The researchers emphasize that this material is still a long way from practical grower use. Further evaluation of the mixture is planned in field studies this year. Readily absorbed by and translocated within plants, F-17 proved able to control bean rust, even when diluted to $\frac{1}{16}$th of the original concentration. When the diluted mixture was painted on the upper surface of bean leaves, and spores of the rust fungus were incubated on the lower surfaces, no disease symptoms occurred.

CaO, etc.

by bill bomberger '57

LIME IS A CAUSTIC, highly infusible solid: white, when pure; chemically CaO; obtained by calcining limestone, shells, or other forms of calcium carbonate.

With a few exceptions, Pennsylvania soils are naturally sour. That is they lack the "sweetness" which is necessary in maintenance of fertile productive land. This so-called "sweetness" is obtained by the application of lime. Lime is removed by crops, and leached out in drainage water. This lime must be replaced by the farmer, if the full extent of the land is to be derived. Soil acidity also interferes seriously with the life and activity of the beneficial soil bacterial which fix atmospheric nitrogen, decompose organic matter, and make the soil nitrogen available. In extreme cases of lime depletion, the calcium and magnesium in lime also may be needed as a plant nutrient. In general, however, lime should be regarded not as a fertilizer, but as an amendment.

It will not take the place of fertilizer or manure. Its function is to make these sources of plant food more efficient through stimulation of bacterial action on the manure and organic fertilizers, and through combining with the phosphorous in the fertilizer which otherwise may combine with other soil minerals and become relatively insoluble. Plenty of fertilizer and manure may produce good crops, but eventually some lime is almost sure to be required for satisfactory results.

Contrary to a common belief, superphosphate and other fertilizers have little or no effect on soil acidity. Sulfate of ammonia, ammonia and urea are the only common exceptions. The use of these supplements will increase the need for lime at the rate of about one pound limestone for each pound of nitrogen fertilizer applied. Besides the clovers and alfalfa, the following plants fail to thrive in a decidedly acid soil: soybeans, oats, wheat, barley, cabbage, cauliflower, celery, beets, lettuce, onions, peppers, spinach, and sweet potatoes.

To make clear the term "acidity," let us take a look at it from a pH standpoint. It is difficult to translate the degree of acidity as indicated by the pH scale into terms of lime requirements, since it will take more lime to change the pH, or degree of acidity, of a heavy soil, or one which is high in organic matter, than a soil which is light or low in organic matter. However, with an average loam soil, one may figure roughly that a ton of limestone will raise the pH five tenths of a point. Thus, it requires about a ton of limestone per acre to bring a soil having a pH of 6.5 up to neutral, and a soil of pH 5.0 might need 4 tons of limestone to sweeten it thoroughly. As stated above, light soils, lighter and more frequent applications of lime may be the better and safer practice.

There is evidence that, with the exception of alfalfa and sweet clover, most crops do better on a soil of a pH of about 6.5 than at 7.0 or even higher. Practical farmers have long known that over two tons of burned lime (on non-limestone soils) might seriously reduce yields for the next year or two. It is possible that this yield depression may be due to tying up some of the so-called minor elements such as boron, in rather insoluble forms under normal conditions, where lime must be purchased, over liming is seldom likely, but it is a possibility. Another factor to be considered is how rapidly lime is leached out or lost from the soil. On the average, one might expect the pH to fall about 0.1 per year on limed soil. This would mean that a ton of limestone every 4 or 5 years would just about take care of normal losses before the clover crop is seeded. Lime should never be applied and worked into the surface and plowed down just prior to sowing clover. The lime does not move downward to any great extent in the soil and the soil turned up will be sour. Alfalfa, which is a deep-rooted crop, will seldom thrive if the lime is only worked into the surface, while the lower soil and sub-soil are still decidedly sour. Applying liberal amounts of lime several years before may be especially advantageous where alfalfa is desired and where soil is quite sour.

The importance of lime is evident—it is a most vital substance in soil conditioning. Pennsylvania is well supplied with good limestone; the raw material from which lime is obtained. Local farmers were among the first to recognize the need for lime, and to use it. Much of our success in maintaining fertile soil and a profitable agriculture is due to the use of lime.

In uncultivated fields or on pasture sods, the loss might be slower, while crops such as alfalfa hay which is high in lime, would increase the loss.

The analysis of a lime is the best guide as to its ultimate value in the soil. Calcium and magnesium are similar in their action in sweetening soils. Chemically, magnesium is somewhat stronger, but it is also somewhat slower in its action. Pennsylvania experiments indicate that high-calcium lime and high-magnesium lime have equal value in actual practice, so that magnesium and calcium percentages may be simply added together to determine the total oxides or carbonates.

Since the principal object in liming generally is to get a crop, clover or alfalfa lime should be applied when preparing the ground. This is especially the case where minimum amounts of lime must be depended upon. Otherwise, the effect of the lime may be largely lost.

\+ + +

GREEN CROPS

(continued from page 16)

ciably if the material has properly protected surfaces. Losses occurring as a result of mold growth may be prevented by feeding about a two-inch layer of silage each day in the winter months, and slightly more during the summer months.

Losses due to drainage generally run about three percent. This figure is greatly lowered if the dry matter content of the silage is at least thirty percent.

The feeding value of a crop in the field is at its peak for only a short time. In order for the nutrient value to be maintained, efficient methods must be employed in handling, preservation and storage.

NOTES and NEWS

(continued from page 20)

speed it up. The people on camera don't see him. He motions again, and again. Finally they go into the closing. The camera pans to distant shot.

"We're clear!"

Over, and exactly on schedule. Nobody knows quite how, but everything went off exactly on schedule.

Normal procedure for a television broadcast seems to involve running, fixing, looking for trouble, finding it, and more running and fixing. It's exciting — it's fast. Even the people who are close to it don't pretend that it isn't. Everything is uncertain until it is over with. Yet everything must go over without a hitch. It must look cooly done and well planned. And amazingly, it does. For the fact is that it *is* cooly done and well planned; in front of the camera at least.

Yes, Hollywood isn't the only place that can talk of being invaded by that modern miracle called television. At long last television has come to the National Agricultural College. WRCV-TV—(Channel 3-NBC) has asked our college to take part in a weekly hour-long television program titled "Farm" with Mr. Pat Landon as emcee. The program has as its objective the farm-viewing population, but material included in the programs would be of interest to the non-farming television viewers as well. Each Saturday, from 8-9 a.m. (for several months) the different departments or combinations of departments at NAC will conduct a program with the subject being their respective fields of agriculture.

President James Work has appointed Mr. William Smith as co-ordinator of the program in order that the programs be carried out to the maximum point of interest and efficiency. Dr. George Turner has been appointed to help the various departments in selecting and developing programs of high caliber. Thus, the gears were set in motion for the first "Farm" show scheduled for April 14, 1956.

Since the program first commenced last April, many subjects of wide interest have been seen in the homes of farmers and suburbanites in and around a large area surrounding Philadelphia. For instance, the first program dealt with *Soil as a home for growing plants.* Dr. Elson together with Mr. Schmeider, discussed and demonstrated the processes of soil formation and its importance on plant growth. To make the TV viewers feel more a part of the program, various soil profiles of different areas in and around Philadelphia and throughout Pennsylvania were shown. In the weeks that followed, Horticulture became the subject area, followed by poultry, the "A-Day" Show, and programs on other phases of agriculture.

As far as the future is concerned, the programs will cover subjects in dairy farming, livestock raising, poultry production, field crops, and related fields in agriculture.

In my opinion the programs are serving a three-fold purpose: (1) to help educate the farmer of today with the fundamental principles behind his everyday farming activities; (2) to broaden the non-farming population's knowledge concerning agriculture, and (3) to publicize NAC and its great educational potential.

To illustrate, look at the fictional farmer "Sub" Marginal. He is a farmer growing 200 acres of mixed grain a year. He probably knows what amount of lime to put into his fields each year, when to plow his fields for maximum grain production, and what, if any, kind of cover crop to use on his fields. But chances are that he knows little about the basic structure of the soil, and how it's formed. How did the soil become *soil,* why there are different types of soil within a limited area, what is there in the chemical composition of the soil that makes some plants grow well, while plants in the same type of soil in a different area fail to grow as well? These questions, and others were, and will be answered in the forthcoming programs of "The Farm." In other words the program is designed to enlighten the farmer on basic factors concerning agriculture.

As was mentioned before, the program will present material concerning agriculture in such a way that it will also be of interest to the non-farming tele-viewers. The majority of suburbanites grow and care for plants and trees, some may have little orchards of their own, while others may even raise some form of livestock. It can be seen that agriculture doesn't stop at the farm. Research on the part of the National Broadcasting Company indicated that there is a widespread interest in the broad field of agriculture. "Farm" hopes to spread the technical knowledge about agriculture that would be of interest to the "city farmer."

HIJACKED HUMOR

compiled by frank ianuzzi '58

Two cannibals on a visit to this country met in the bus station. One was busily tearing out pictures of men, women, and children from a magazine and chewing them up. "I've heard about that dehydrated stuff," said the other. "Is it any good?"

\+ + +

Headline in a local newspaper—"Father of ten children shot—mistaken for rabbit."

\+ + +

"Our club's dinner is next week," said Mrs. Underwood. "What are you going to wear?"

"Well," replied Mrs. Smith "we are supposed to wear something to match our husband's hair, so I'm going to wear black. How about you?"

"Gracious!" exclaimed Mrs. Underwood, "I don't think I'll go."

\+ + +

The kindly old gentleman was visiting the home of his daughter. He entered the room of his two grandsons and found them busy studying at their desks. The first boy was reading a book on aviation.

"What do you want to be when you grow up?" asked the grandfather.

"A pilot, sir." said the boy.

"And what do you want to be when you grow up?" the old gentleman asked the second lad.

The boy looked up from the latest issue of Playboy. "Nothing, sir," he said wistfully, "just growed up."

A bachelor is a college graduate who didn't have a car in his youth.

\+ + +

A sensible girl is not as sensible as she looks, because a sensible girl has more sense than to look sensible.

\+ + +

The man on the crowded bus was surprised when the attractive young lady across the aisle smiled at him. And he was astounded when, in a pleasant but loud voice, she queried, "Aren't you the father of two of my children?"

"Why, Well-that is, I don't know," he sputtered.

"I'm sure you are," she insisted. "I teach fifth grade at Lincoln School."

\+ + +

The reason Cupid makes so many bad shots these days is that he is shooting at the heart while looking at the hosiery.

The stranger ambled into the farm yard and was greeted by the farmer. The visitor produced his card and remarked: "I'm a government inspector and am entitled to inspect your farm." Half an hour later, the farmer heard screams from his alfalfa patch, where the inspector was being chased by a bull. Leaning over the gate as the inspector made his third lap around the field, the farmer shouted, "Show him your card, mister—show him your card!"

\+ + +

A warning to one-arm drivers: "A driver can't keep his mind on the brake if his thoughts are on his clutch."

\+ + +

A naive father is one who thinks his daughter has been a good girl because she returns from a date with a Gideon Bible in her purse.

THE GLEANER

WISHES TO THANK

mr. james work
mr. william smith
prof. r. d. forbes
mr. donald meyer
mrs. herbert smith
mr. daniel miller
mr. j. allen gardy

WINGED WONDERS

(continued from page 11)

that frequents its hunting grounds is under its gaze at every moment. One of the few birds that may escape its talons is the Flicker, since he flies very close to the limbs and branches of trees. Though the Sharp-shinned hawk has a liking for chickens, he rarely attacks full grown poultry, but often exterminates early broods which are allowed to run at large.

In the examination of the stomach of this bird, the remains of nearly fifty species of birds were recognized. To show how universally this species feeds on small birds, it is only necessary to say that out of one hundred and seven stomachs, 96% contained the remains of birds. Rarely are mammals and insects taken.

The Sharp-shinned Hawk must not be mistaken for the Sparrow Hawk, which is a sociable bird and valuable to the farmer. The Sparrow Hawk is the smallest and best known of all our hawks, and can be found almost any place in the country. It inhabits fields and prairies, open woods, and deserts. He is also a very handsome and colorful bird. While searching for food, it sits motionless on some elevated perch, from where it may swoop down for the kill. He may pause and hover to get a better view, then plunge and devour the insect. The principal diet of this hawk is grasshoppers, crickets, terrestrial caterpillars, beetles, and spiders. During the winter months, its diet consists of meadow mice and house mice, though it often attacks small birds and chickens. The good it does in destroying insects and mice overweighs these acts tremendously.

The Downy Woodpecker is a very common carnivorous bird in the Eastern part of the United States. He lives in our woodlands, as the other members of the Woodpecker family, taking the larger part of his diet from beneath the bark of many trees. The birds of this family are found in all regions of the world except on the islands of Madagascar and the entire Australian region. The Downy Woodpecker is the smallest of the Woodpeckers of the northeast while the Pileated Woodpecker is as large as the common black crow of the corn fields. Since the Downy Woodpecker is a woodpecker relative, one would think that he acts like the rest of the group. This is not so in his case. During the winter months he does not associate with them, but travels around with the Chickadees, Nuthatches, and the Brown Creepers.

To the fruit grower, he remains a friend by locating the lodgings of the flatheaded apple borer; furthermore, he extracts them in considerable numbers. Moreover, he is an enemy of the Coddling moth and the caterpillars, which constitutes 16½% of his daily diet. He feeds on a large number of wood-boring insects and surface feeders. Less than 6% of his entire food is fruit and very little of it is cultivated. Grains of all kinds aggregate less than 2%. The one charge that is brought against him, is his fondness for poison ivy seeds, and these fruits are also cherished by many other birds.

Thus we see that our winged wonders are spread over the entire world —each having a characteristic plumage and habits of survival. It also becomes evident that the common names of many birds discredit them severely in addition to common belief about their diet. Though these birds represent only a few of our feathered friends who aid man's fight against the insect and rodent world, they are representative of the majority of the birds over the earth.